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location hypotheses generated by the first order models 1224. For each partition area A, a first order model 1224 is supplied with wireless measurements of archived location data in the Location Signature Data Base associated with corresponding verified mobile station locations. Thus, a probability can be determined as to how likely the first order model is to generate a location hypothesis having a location estimate containing the corresponding verified mobile station location. Accordingly, a table of partition area probabilities can be determined for each first order model 1224. Thus, when a location hypothesis is generated and identified as belonging to one of the partition areas, the corresponding probability for that partition area may be assigned as the confidence value for the location hypothesis. The advantages to using actual probabilities here is that, as will be discussed below, the most likelihood estimator 1344 can compute a straightforward probability for each distinct intersection of the multiple location hypotheses generated by the multiple first order models, such that each such probability indicates a likelihood that the target mobile station is in the corresponding intersection.

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The following paragraph beginning at page 83, line 19 and ending at page ~~83~~⁸⁴, line 11 has only formatting changes.

(30.4) the hypothesis evaluator 1228 may determine if (or how well) such location hypotheses are consistent with well known physical constraints such as the laws of physics. For example, if the difference between a previous (most likely) location estimate of a target MS and a location estimate by a current location hypothesis requires the MS to:

- (a1) move at an unreasonably high rate of speed (e.g., 200 mph), or
- (b1) move at an unreasonably high rate of speed for an area (e.g., 80 mph in a corn patch), or